

INVESTIGATING “SENSE OF BELONGING” IN FIRST-YEAR COLLEGE STUDENTS

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ABSTRACT

A great deal of emphasis in higher education is centered on questions such as, “Why do students leave college and how can we get them to stay?” Although researchers have pointed to the import of “sense of belonging” in departure decisions, a measure of students’ subjective sense of affiliation and identification with the university community has not been developed. The following is an empirical measure of “sense of belonging” which sheds light on factors that contribute to retention. Gaining greater clarity regarding factors important to the development of “sense of belonging” can help institutional policy planners evaluate the effectiveness of retention programs on their campuses, design more effective intervention strategies, and identify students at risk for departure.

According to the American College Testing Program (1999), approximately one-quarter of all new college students do not return for their sophomore year. Aside from the personal and practical consequences related to persistence in college, student tuition and fees make up a sizable proportion of higher education revenue. Consequently, student retention continues to be a major concern of college administrators and a great deal of emphasis in higher education is centered

on questions such as, “Why do students leave college and how can we get them to stay?”

Researchers have been investigating and reporting on student attrition for many decades. Over the years, investigations have focused on various elements of the university environment. According to Vincent Tinto, the theorist credited with developing the most comprehensive theoretical model of persistence/withdrawal behavior (1975, 1987), postsecondary institutions are comprised of distinct social and academic systems. Integration into these systems, which reflects a student’s judgment of “fit” within the new setting, represents perceptions on the part of the student of shared values and support in the collegiate environment. This subjective sense of affiliation and identification with the university community is known as sense of belonging.” Sense of belonging is theorized to reflect students’ integration into the college system. All things considered, the greater a student’s “sense of belonging” to the university, the greater is his or her commitment to that institution (satisfaction with the university) and the more likely it is that he or she will remain in college.

Although researchers frequently point to the import of “sense of belonging” in departure decisions, attrition models built by researchers have failed to adequately conceptualize and include this important theorized construct. Failure to provide conceptual guidance to researchers for empirically testing “sense of belonging” and/or the complexity in measuring this psychological manifestation has contributed to its absence in the persistence/withdrawal literature (Hurtado & Carter, 1997). This may offer one explanation as to why popular student departure models are able to account for only a small proportion of the explained variance in persistence/withdrawal decisions (Braxton, Duster, & Pascarella, 1988; Pascarella & Chapman, 1983; Pascarella, Duby, & Iverson, 1983; Pascarella & Terenzini, 1983; Terenzini & Pascarella, 1980).

It seems evident that the field can benefit from a more refined notion of integration, one that represents an empirically distinct “sense of belonging.” A refined definition may elucidate why student involvement and interaction in the college systems alone are not sufficient to ensure integration, why integration into only one system is not enough to ensure persistence, while shedding light on factors that contribute to retention. Gaining greater clarity regarding factors important to the development of “sense of belonging” can help institutional policy planners evaluate the effectiveness of retention programs on their campuses, design more effective intervention strategies, and identify students at risk for departure.

FACTORS RELATED TO “SENSE OF BELONGING”

Although the attention of those in higher education has been diverted away from the concept of “sense of belonging,” it has been more mindfully considered in other fields. The most prolific contributors of such knowledge are in fields more

closely associated with explaining alterations in physical and mental health, such as psychology, psychiatry, and nursing. Generally, this literature defines “sense of belonging” as “the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment” (Hagerty, Lynch-Sauer, Patusky, Bouwseman, & Collier, 1992, p. 173).

Defining attributes of “sense of belonging” are postulated to be fit and valued involvement (Hagerty et al., 1992). Fit refers to the perception that one’s values or characteristics are congruent with others, and valued involvement refers to the perception that one is valued, needed, or important to others (Hagerty, Williams, Coyne, & Early, 1996). “Sense of belonging” is conceptualized as an aspect of interpersonal relatedness most dissimilar to loneliness and most closely associated with social support (Hagerty et al., 1996; Russell, Cutrona, Rose, & Yurdo, 1984). Loneliness is presumed to be a consequence of failing to connect with others (Hagerty & Patusky, 1995), whereas the perception of support is believed to arise from notions that one is structurally integrated into a social network and has adequate resources available (Cohen & Wills, 1985).

RETENTION AND INTERVENTION STRATEGIES

Notable theories on persistence agree that it is during their freshman year that students are most likely to drop out of college (Spady, 1970; Tinto, 1975; Tinto & Goodsell, 1993). The first term, especially the first six weeks, is particularly crucial as it is during this time that students are most susceptible and sensitive to feelings of marginality (Tinto, 1988). Because research suggests that student involvement and interaction are most affected by the collegiate environment (Pascarella, 1985; Pascarella & Terenzini, 1991), individual institutions can do much to influence the dropout rate among their students (Tinto, 1982).

Reducing the rate of voluntary withdrawal could be accomplished through mechanisms intended to promote more effective integration into both college systems, academic and social. Interventions which foster integration into both systems concurrently would likely be particularly effective. Alexander Astin’s work (1984) has been the impetus for many educational policies aimed at increasing the interaction and involvement of students on the college campus during their first year. Two examples of such programs are freshman seminars and learning communities.

Freshman Seminar Courses

Freshman seminar courses are intended to provide students with essential strategies and information to enhance the likelihood of their retention and academic and social success (National Resource Center for The First-Year Experience and Students in Transition, 1999). In general, they can be described as an ongoing orientation program. The primary mission of orientation is to “. . . aid

new students in their transition to the institution; expose new students to the broad educational opportunities of the institution; and integrate new students into the life of the institution” (Council for Advancement of Standards, 1986, p. 97). In 1992, 69 percent of universities reported offering a freshman seminar course (Strumpf & Sharer, 1993).

The organization of freshman seminar courses varies, depending largely on the nature, size, staffing, clientele, and purpose of the program at each institution (Smith & Brackin, 1993). These courses differ in terms of requirement for participation, format, assigned academic credit, grading, instructors, and content. Given the impact the college environment has on so many facets of a new student’s life, which creates almost limitless possibilities for course content, the reasons for these differences are easily understood. It has been found, however, that despite differences in course organization and concentration that “. . . students enrolled in freshman-year experience courses tend to complete more credit hours, earn higher cumulative grade-point averages, and return to the institutions at higher rates than students who did not enroll in such first-term courses” (Sidle & McReynolds, 1999, p. 61).

Learning Communities

Another orientation-type program that is gaining in popularity is the learning community. In its most basic form, “Learning communities are a kind of co-registration or block scheduling that enables students to take courses together” (Tinto, 1998, p. 170). Often, learning community students share a freshman seminar course within this cluster of linked courses. The cluster of courses may be a random arrangement of general education courses or they may be connected intentionally by an organizing theme such as an academic major or non-major interest (e.g., leadership or athletics).

Despite differences in the models used, the goal of learning communities is to develop small communities within the larger campus community (Boyer Commission, 1998). Co-registering students in the same courses so they are studying the same material is advantageous for a number of reasons. At the very least, learning communities, by having students spend more time with one another, create a structure that increases the likelihood of interaction. Increasing the likelihood of student/student and student/faculty interaction increases the likelihood that students will more easily make connections with peers and faculty.

PURPOSE OF THE STUDY

The primary objective of this study was to develop, test, and further refine a “sense of belonging” instrument that could be used to more fully understand why students persist in, or withdraw from, college. The process used to develop this “sense of belonging” instrument is described here in four parts: Part A describes

the development of items intended to assess “sense of belonging” to the post-secondary institution; Part B describes pre-testing and revision of the “Sense of Belonging” instrument; Part C presents findings from an investigation using the revised instrument to assess differences among learning community and non-learning community students; and Part D summarizes the current study and describes an investigation underway to confirm the plausibility of the factor structure of the scale and further establish its psychometric properties.

PART A: INSTRUMENT DEVELOPMENT

Two measures were initially constructed to assess “sense of belonging” to the postsecondary institution, a 50-item measure concerned with student/peer relationships and a 35-item measure investigating student/faculty relationships. The 85 items included on these two measures were generated from various sources. First, an in-depth review of the existing literature was conducted. Second, 24 focus groups (between 15 and 30 students each) were conducted with first-year students and their results analyzed. And third, a review stage when research team members, those assisting with planning and conducting the focus group study, evaluated the items for relevancy, clarity, and conciseness and made needed revisions.

Focus Group Study

Overview

Currently, the University of Rhode Island (URI) provides both freshman seminar classes and learning communities for first-year students. URI 101: Traditions and Transformations is an introductory one-credit seminar for freshmen that was implemented in 1995. The first two years of URI 101 course evaluations (1995, 1996), which utilized quantitative evaluations, consistently found the course successful in introducing students to the resources of the university, helping them to learn about extracurricular activities, and helping students to adjust to life at the university (University College and General Education Committee, 1997). However, the course was not found to be successful in meeting academic and career-related objectives.

As a response to the freshman seminar’s lack of success in meeting the course’s academic goals, learning communities, which encourage students to develop strong connections with each other around academic courses, were piloted in fall 1997. URI learning communities include a cohort of no more than 25 students who share three to four courses in common and whose schedules are anchored by a URI 101 course. Linking the freshman seminar to a learning community has had clear benefits. In subsequent evaluations of URI 101 (1997, 1999) students in a learning-community linked seminar reported they were better able to plan their educational goals, had better academic survival skills, and had higher quality

student/peer and student/faculty relationships than students in the freshman seminar alone (Hoffman, 2000; University College and General Education Committee, 1998).

In the fall of 1999, an extensive qualitative investigation was conducted with new students to examine the impact that the various retention/intervention strategies, freshman seminars and learning communities, have on their adjustment to college and to gain a better understanding of the frequently overlooked “sense of belonging” construct. Because student satisfaction with the university (i.e., institutional commitment) and intention to persist to graduation are factors known to correlate most highly with “sense of belonging,” the focus groups were designed to investigate student perceptions of the university environment important to the development of these dispositions.

Selection of Research Methods

Focus groups were determined to be the best method for identifying and illuminating the many cognitive and affective elements of “sense of belonging,” helping to define the concept more precisely. Qualitative methods, which are considered to be superior to quantitative methods for achieving in-depth understanding of complex processes such as student change and development (Marshall & Rosman, 1989; Morgan, 1986), were selected for this purpose. Focus groups, which promote interaction among group members, were judged the best method of data collection among competing qualitative techniques because they are especially useful for obtaining in-depth information about attitudes, values, and beliefs which may not be apparent in individual interviews or in observation of behavior (McMillin, 1989; Whitt & Kuh, 1991).

Participants

Participation in the university’s freshman seminar course is mandatory for all new students. Roughly 2000 undergraduates were enrolled in the course during the fall of 1999. During this term, the course included four distinct learning environments. In addition to 33 standard URI 101 classes, which ordinarily consist of heterogeneous populations, 32 sections were intended for special populations of students sharing a common non-major (e.g., athletics, commuting) or major (e.g., business, marine biology) interest. The remaining 16 URI 101 sections were part of a learning community. Each learning community “cluster” commonly included both a skills-based (e.g., communications, writing) and a content-based (e.g., psychology, sociology, economics) course, and was anchored by a freshman seminar class (section of URI 101).

After securing approval from the sponsoring university’s Institutional Review Board, 12 learning community and 12 non-learning community focus groups were conducted. Focus groups were conducted with 6-week “mini-semester” sections of URI 101 because consistent research evidence shows that it the first six weeks in

college that are most important to student adjustment and subsequent success (Tinto, 1988).

Procedures

Focus groups were conducted in class during the final two weeks of the course and generally lasted 60 minutes. First, students were read an opening statement that ensured their confidentiality and described the purpose of the interview, that is, to identify better ways and new programs to help students succeed in college. Students were then asked to respond to a variety of questions. Guided by the theoretical frameworks provided by both Tinto (1975) and Astin (1984), the questions were constructed to tap both perceptual and behavioral qualities of the students' collegiate experience. Topics about which students were asked included: peer relationships, experiences with faculty, participation in campus activities, changes and challenges faced since the start of the semester, stressors in the collegiate environment, satisfaction with the University, and intentions to persist.

Analyses

Separate transcripts were prepared for each focus group. Manual axial coding, which refers to placing codes in the margin of the transcript to categorize results and label themes, was used in the analysis (Strauss & Corbin, 1990). This low-technology option has been used in countless analysis projects (Krueger, 1998). Transcripts were sorted according to the classroom environment of the URI 101 section. Analysis first proceeded question by question, looking for themes and patterns within questions and then across questions. Later, similarly coded text was selectively retrieved from word processing programs and reassembled to represent emergent themes, retaining the distinction among the classroom environments.

Data

Several major themes emerged that appeared related to institutional commitment and to intention to persist. These themes can best be described as factors important to “quality” student/peer and student/faculty relationships. Specifically, factors related to “quality” student/peer relationships include: perception of peer social support, perception of peer academic support, and perception of personal comfort within the classroom environment. Factors related to “quality” student/faculty relationships include: student perception of faculty as humane and compassionate, student believing he or she is important to (valued by) the instructor, comfort with the instructor, and perception that he or she is supported by the instructor.

It was also along these lines that learning community and non-learning community students in this investigation consistently diverged. In general, learning

community students were found to be more satisfied with the university as evidenced, in varying degrees, from information collected in response to each question. The groups differed widely regarding intention to persist. Because learning community and non-learning community students were found to differ dramatically within these critical dimensions, this investigation attended to factors discriminating between the two groups. What follows is a brief summary of findings from the focus group study (Richmond, Hoffman, Salomone, & Morrow, 2000).

Factors Important to “Quality” Student/Peer Relationships

Overview

A major factor discriminating between learning community and non-learning community students was the ability of students to form new friendships. The learning community model enabled students to establish relationships with peers around academic matters. The opportunity to make friends in class and to have friends with whom to discuss academic matters outside of class directly contributed to increased perceptions of support and comfort. Stand-alone freshman seminar classes did not appear helpful in this regard.

Social Support

Learning community students reported numerous benefits attributable to co-enrollment in courses with a group of their peers. Foremost, learning community students stated that “sharing three classes” with other students not only “makes it a lot easier to meet other students . . . in every single class,” but it also “takes the stress out of” doing so. Unlike non-learning community students, who often reported not knowing anyone in most of their classes, learning community students commonly reported “knowing everyone” in at least some of their classes. Furthermore, these friendships established within the confines of the learning community classroom were often found to transfer to more social aspects of university life.

Academic Support

Aside from developing relationships with others with whom to spend time socially outside of class, the interaction of learning community students within the classroom was found to lead to the development of peer relationships characterized by various supportive functions relating directly to academics. These supportive functions, “people to call and get notes from” and people to “ask for help with assignments and things like that,” served to help students negotiate the academic system. The learning community students relayed a sentiment that

they are not alone in the academic endeavor, an attitude not evidenced by students in stand-alone freshmen seminar classes.

It was considerably more common for learning community students, relative to students in non-linked courses, to know the phone numbers of classmates they could call when needed. Learning community students also reported remembering assignments and deadlines more easily, endorsing the value of belonging to a learning community and having regular contact with peers. “When we see each other we update each other . . . we’re like, oh did you remember to do that.”

Although not all learning community students were more likely than stand-alone freshman seminar students to study together in formal ways, all indicated a much greater degree of informal instructional support from peers. Many remarked that if they have a problem or a question concerning a linked subject they simply “ask someone before or after class” and other times when they see each other. The students reported “talking a lot” about linked courses in URI 101 and in “passing conversation” with one another.

Classroom Comfort

Perceptions of personal comfort, within the classroom setting itself, denotes another domain in which learning community students and those enrolled in traditional freshman seminar courses appear to greatly diverge. The freshman seminar class, anchoring the linked courses, was described by students as “a home base,” a place they “can always go back to.” In general, this comfort transcended feelings of anxiety normally associated with:

1. Raising their hand in class to ask a question or give an opinion
 - “We feel comfortable asking questions in class because we all know each other.”
2. Making a class presentation
 - “It makes it easier to get up and speak in front of people that you know. It’s more comfortable.”
3. Feelings of being overwhelmed by the size of their larger classes
 - “In history (linked course), I’ve got a big lecture hall. . . . You’re sitting there with like 400 hundred people and the learning community people. You at least know some people and you feel comfortable in the class.”

Factors Important to “Quality” Student/Faculty Relationships

Perception of Faculty

Although both non-learning community and learning community groups reported that they generally found faculty to be both friendly and approachable, their responses differed in terms of specificity and intensity. Statements by learning community students conveyed a greater “like” of their instructors and

their teaching (“do you put the better teachers in the learning communities?”) and included favorable personal descriptors known to be important to first-year students—“They’re flexible.” “They’re understanding.” “They’re not cut-throat.” These descriptors convey a sentiment that they believe faculty to be both humane and compassionate.

Perception of Value

Having an instructor teach multiple courses directly reduced perceptions of marginality by some students, “Being in this class we have a teacher that actually knows most of our names. He even knows our last names. We don’t have that in any of our other classes.” Learning community students not only felt that a faculty member knew who they were but that someone on the faculty cared about them (Valued Involvement):

- “Whether it be for this class or if we have a problem in another class, we could ask him [URI 101 instructor]. We see him today for this class and three other days of the week. If we have a problem on a day we don’t see him, we have his number.”

Support and Comfort

The above statement also illustrates that learning community students feel that they can “count on” their instructor for support and guidance. Along with the perception of support, students appear comfortable in approaching instructors when needing to discuss academic and or personal matters.

- “I kind of think that if we did something badly or whatever we could always turn to our professor, just because he would always be there. Why would you want to go to your advisor or any other professor when you don’t even know them or they don’t know you. It would kinda be like nice if everybody had a professor that they could turn to if they had a problem.”

This perception of support and comfort lead to greater attachment and commitment to that instructor.

- “I’m not sure if it’s just that we have a good professor or if it’s the learning community. It’s just that when you have this class you feel a lot more comfortable. When I’m in my other classes, I just feel like I’m another person. I kind of zone out a lot because I don’t care. I mean, it doesn’t matter. I don’t feel like the same kind of a . . . I don’t rely on their opinion as much as I do his.”

Summary of Findings

In this investigation, entering freshmen, by their own accounts, felt most overwhelmed by the academic expectations in college. Understandably, students reported academic concerns to be their greatest stressor in the collegiate environment and identified academics and time management as their greatest challenge since beginning college. This research found that the development of “interpersonal ties,” on which a student could rely to provide tangible aid, guidance, and feedback about academic matters and which provided students with a sense of being cared for and of being a member of a network of mutual obligation, enhanced their coping abilities and increased their personal comfort around social and academic matters. Students were thus more resilient and more comfortable in the university environment.

PART B: PRE-TEST

Participants

Participants in the pre-test phase of the study were 205 students (144 women and 61 men), also from the University of Rhode Island, all between 18 and 20 years old. Eighty-five percent of those in the sample were Caucasian, 2 percent were African-American, 2 percent were Latino or Hispanic, 2 percent were Asian, and 9 percent identified themselves as “other.” The students used in this study were all first-year college students. Eighty-three percent of the students lived in on-campus university housing and 53 percent were in-state students.

Questionnaire

The questionnaire used in this study consisted of three parts. Part 1 asked for demographic information (e.g., age, gender, race, residency status, year in school, classroom environment) and contained questions to assess satisfaction with college and commitment to the university. Parts 2 and 3 were the “sense of belonging” scales generated from the focus group study. Part 2 was concerned with student/peer relationships. This scale was comprised of 50 items, 16 of which were worded negatively to control for the general tendency to agree or disagree with items regardless of their content. Part 3 was concerned with student/faculty relationships. This scale was comprised of 33 positively worded items and two negatively worded items for a total of 35 items.

Items on each scale were listed in random order. Respondents had five responses available: Completely True (1); Mostly True (2); Equally True and Untrue (3); Mostly Untrue (4); and Completely Untrue (5). Respondents were asked to read each item carefully and to rate their agreement with each statement, based on their experience at the university during the current school year, by filling in an oval to the right of each statement.

Procedures

After obtaining approval from the Institutional Review Board at the sponsoring university and from instructors of the general psychology course, the questionnaire was administered to students enrolled in the 17 general psychology recitation sections scheduled in the spring 2000 term. A scripted introduction describing the purpose of the questionnaire, students' rights as research participants, and instructions on completing the questionnaire was read to students in each class by their recitation leader, a graduate student in psychology. Students were informed that the purpose of the study was to gain information regarding their experiences at the university in order to improve the conditions that contribute to their learning and development and to the quality of the experiences of those who come after them. Students were informed that their responses were anonymous. No financial remuneration or course credit was offered as an incentive to participate. The students were also informed that, if they chose not to participate, they could simply return an incomplete questionnaire without any penalty in the course. All of the students in the 17 classes agreed to participate.

Each general psychology recitation section enrolls between 20 and 35 students. Students completed the questionnaire in class in these small groups during the tenth week of the semester. A total of 448 completed questionnaires were collected by recitation leaders. Of the 448 questionnaires, 20 were completed by transfer students and 77 by students beyond their first year. Because the intent of the study was to investigate factors important to first-time college students during their first year, these questionnaires ($n = 97$) were not used in the analyses. Of the remaining 351 questionnaires, only those completed by students enrolled in either a standard freshman seminar class or a learning community were used. In all, data from 205 of the original 448 questionnaires were analyzed.

CLASSROOM ENVIRONMENT MEANS COMPARISONS

First, the ratings for each of the 50 student/peer items and 35 student/faculty items were subjected to an independent-samples t test with the alpha level set at .05 to identify those items that distinguished between learning community ($n = 69$) and non-learning community students ($n = 136$) in the predicted direction. The results from the t tests indicated statistically significant differences between learning community and non-learning community students on 47 of the student/peer items and on all student/faculty items. The 47 student/peer items, mean and standard deviations for the two groups, t values and significance levels for differences between the mean are presented in Table 1. Identical information for the 35 student/faculty items are presented in Table 2.

EXPLORATORY FACTOR ANALYSIS

In order to refine the “sense of belonging” instrument an exploratory factor analysis was conducted. The goal of this analysis was to identify the main conceptual dimensions of a “sense of belonging” instrument, reduce the number of individual scales needed to effectively measure these independent dimensions, and to provide evidence that these dimensions reflect the conceptual definitions of “sense of belonging” found in research literature. The statistical process used to develop the “sense of belonging” measure is described here in three main parts.

Developing the Student/Peer Measure

All 50 student/peer items were analyzed using principal components factor analysis.¹ This initial analysis identified nine potential underlying dimensions (factors) of the student/peer “sense of belonging” construct and these nine factors explained 64 percent of the variance among all 50 items. However, since the purpose of this factor analysis was to establish the best and most meaningful dimensions of the student/peer measure a number of additional analyses were completed before settling on a four-factor solution with each of these four factors including four of the original student/peer items.²

Four underlying dimensions of the sense of belonging scale were identified by this analysis, they are perceived classroom comfort, perceived isolation, perceived academic support, and perceived social support. These four factors explain a total of 68.5 percent of the variance among the original set of 50 items, or 44.2 percent, 10.9 percent, 7.8 percent, and 5.6 percent of the total variance, respectively. Standardized factor loading values for the 16 items that comprise the final four factors are presented in Table 3.³

¹ Factor analysis was found to be an appropriate statistical method to use on these data after calculating a Kaiser-Meyer-Olkin (KMO) measure of inter-relatedness among the 50 items of 0.92. And because a primary goal of this study was to identify uncorrelated, underlying dimensions (factors) of the “sense of belonging” construct, varimax rotation was used in this initial principal components analysis (PCA). Finally, only underlying dimensions (factors) with eigenvalues ≥ 1.0 were retained for further analyses.

² Analyses used to determine the four factors and their related items included: 1) examination of the nine-factor Scree plot (Cattell, 1996); b) retaining only items with factor loadings ≥ 0.50 ; c) deleting items with multiple factor loadings; d) deleting items that were not conceptually related to the factor with the highest factor loading; and e) deleting items that were determined to be redundant.

³ Coefficient alphas were computed to determine the internal consistencies for the entire scale and for each of the four factors. Results indicated a coefficient alpha of 0.91 for the entire scale. Coefficient alphas for the four factors were 0.90 for perceived classroom comfort, 0.82 for perceived isolation, 0.84 for perceived social support, and 0.77 for perceived academic comfort.

Table 1. Student/Peer Items, Means, Standard Deviations, *t* Values, and Significance Levels by Classroom Environment

	Classroom environment					
	Non-LC			LC		
	<i>M</i>	<i>SD</i>	<i>t</i>	<i>M</i>	<i>SD</i>	<i>Sig.</i>
1. I feel comfortable asking a question in class.	2.65	.98	1.90	1.90	.96	5.27 .000
2. I discuss course material with my classmates before or after class.	2.76	.88	1.77	1.77	.84	7.70 .000
3. I feel comfortable volunteering ideas or opinions in class.	2.96	1.01	2.04	2.04	.98	6.21 .000
5. Speaking in class is easy because I feel comfortable.	3.07	1.06	2.25	2.25	.95	5.44 .000
6. Class sizes are so large I feel like a number.	3.28	1.14	2.68	2.68	1.06	3.63 .000
7. I like knowing other people in my classes.	1.62	.76	1.36	1.36	.66	2.44 .016
8. I wish I knew more students in my classes who I could call if I had a question.	4.14	.89	3.42	3.42	1.12	5.02 .000
9. If I have a question in class I usually ask it.	3.03	1.00	2.20	2.20	.93	5.73 .000
10. I have made new friends as a result of my enrollment in my courses.	2.42	.94	1.58	1.58	.76	6.44 .000
11. Even in my small classes, I do not know by name many of the students.	3.51	.97	2.30	2.30	1.15	7.84 .000
12. I know the phone numbers of other students in my classes.	3.29	1.00	2.41	2.41	1.12	5.75 .000
13. I feel alone when I am in class.	2.79	.86	1.88	1.88	.88	7.02 .000
14. I rarely talk to other students in my classes.	2.79	.96	1.90	1.90	.94	6.36 .000
15. I ask students in other classes to help me with a problem I am having in another course.	3.43	.93	2.68	2.68	.99	5.29 .000
16. I say hello to people I recognize from class when I see them outside of class.	2.16	.91	1.62	1.62	.81	4.15 .000

17. I am afraid to speak in class.	2.65	1.04	2.03	1.07	4.04	.000
18. I have spent time talking informally to students in class about assignments in a different course.	3.04	.94	2.25	.93	5.72	.000
19. I do not feel that I know students who could help me with a course if I needed it.	2.96	1.00	2.26	.93	4.86	.000
20. I often find myself talking to students in class about tests or coursework from a different course.	3.39	.82	2.51	.93	6.96	.000
21. It is easy for me to get in touch with another student from my class if I had a question or a problem.	3.24	1.00	2.28	1.03	6.49	.000
22. Even in my smaller classes, I often do not volunteer an answer or opinion because I am embarrassed.	2.63	1.02	2.20	1.02	2.84	.005
23. I participate in study groups with other students.	3.44	1.05	2.59	1.00	5.55	.000
24. I never discuss coursework with my classmates outside of class.	2.43	.91	2.00	1.01	3.05	.003
25. If I miss class, I know students who I could get the notes from.	2.45	1.00	1.64	.66	6.07	.000
26. I stop to talk to people I recognize from class when I see them in other places on campus.	2.77	.92	2.01	.76	5.91	.000
27. I could call another student from class if I had a question about an assignment.	2.82	.98	1.91	.82	6.57	.000
29. Other students are helpful in reminding me when assignments are due or when tests are approaching.	2.86	1.10	2.06	.78	5.41	.000
30. I feel comfortable contributing to class discussions.	2.97	.97	2.16	.96	5.69	.000
31. I know very few people in my classes.	3.24	.94	2.29	.99	6.71	.000
32. I miss few assignments because others remind me when they are due.	3.33	.97	2.38	1.04	6.50	.000

Table 1. (Cont'd.)

	Classroom environment					
	Non-LC		LC		t	Sig.
	M	SD	M	SD		
34. People I know from class invite me to do things socially.	3.19	.97	2.26	.89	6.68	.000
35. No one in my classes knows anything personal about me.	3.13	1.03	2.55	1.11	3.72	.000
36. Students in my classes know my name.	2.71	.82	2.10	.99	4.69	.000
37. I have discussed personal matters with students who I met in class.	3.49	.99	2.43	.98	7.26	.000
38. It is difficult to meet other students in class.	3.07	1.01	2.38	1.06	4.54	.000
39. I have developed personal relationships with other students in class.	3.12	.95	2.12	.93	7.25	.000
40. It has not been easy to make friends with other students in class.	3.10	1.01	2.32	1.04	5.16	.000
41. I am satisfied with my academic experience.	2.90	1.01	2.23	.93	4.57	.000
42. I have given my telephone number to my classmates.	2.98	.96	2.03	.97	6.66	.000
43. I invite people I know from class to do things socially.	3.25	.96	2.25	1.02	6.94	.000
44. I discuss events which happen outside of class with my classmates.	2.87	.93	1.97	.80	6.80	.000
45. Classmates ask me for help with a course.	3.09	1.01	2.30	1.08	5.15	.000
46. I have met with classmates outside of class to study for an exam.	3.15	1.18	2.17	1.04	5.79	.000
47. I have joined a campus club or organization with someone I know from class.	3.88	1.19	3.29	1.27	3.29	.000
48. Classmates have contacted me outside of class to ask about an assignment.	3.10	1.11	2.06	.87	6.82	.000
49. I have worked on a class assignment, project, or presentation with other students.	2.71	1.13	2.00	1.00	4.42	.000
50. I contact people I know from class and spend time with them outside of class.	3.29	1.09	2.22	.95	6.93	.000

Developing the Student/Faculty Measure

As with the student/peer items, all 35 student/faculty items were analyzed using principal components factor analysis.⁴ This initial analysis identified three potential underlying dimensions (factors) of the student/faculty “sense of belonging” construct that explained 65 percent of the variance among all 35 items. Further analyses refined these three dimensions (factors) and produced three meaningful factors, each with at least three of the original student/faculty items.⁵

The three additional underlying dimensions that were identified by this analysis are empathetic understanding, perceived faculty academic support/comfort, and perceived faculty social support/comfort. These three factors explain a total of 73.3 percent of the variance among the original set of 35 items, or 54.0 percent, 10.4 percent, and 8.9 percent of the total variance, respectively. Standardized factor loading values for the 10 items that comprise the final three factors are presented in Table 4.⁶

Refining the Sense of Belonging Instrument

The final statistical steps were designed to combine the student/peer and student/faculty measures into a composite “sense of belonging” instrument, which was the primary goal of this study. Once again, principal components factor analysis was used to determine the combined underlying dimensions (factors) of the 26 items that comprise the two major components of the “sense of belonging” construct—the student/peer and student/faculty measures.⁷

Five underlying dimensions of the sense of belonging instrument were identified by this analysis. Two of the factors identified when analyzing student/peer items separately merged in this final analysis (perceived academic support and perceived social support) to form a more general peer support dimension. And two factors of the original student/faculty analysis merged to form a more general

⁴ On these 35 items the KMO measure of inter-relatedness was 0.95. Once again, varimax rotation was used and only the factors with eigenvalues ≥ 1.0 were retained for further analyses.

⁵ Analyses used to determine these three factors and their related items included: a) examination of the three-factor Scree plot (Cattell, 1996); b) retaining only items with factor loadings ≥ 0.50 ; c) deleting items with multiple factor loadings; d) deleting items that were not conceptually related to the factor with the highest factor loading; and e) deleting items that were determined to be redundant.

⁶ Coefficient alphas were computed to determine the internal consistencies of the entire scale and for each of the three factors. Results indicated a coefficient alpha of 0.90 for the 10 items. Coefficient alphas for the three factors were 0.85 for empathetic understanding, 0.83 for perceived faculty academic support/comfort, and 0.83 for perceived faculty social support/comfort.

⁷ Because descriptive statistics revealed that the factors developed so far were correlated (all were ≥ 0.32 , suggesting that there was at least a 10 percent overlap in the variance among factors), direct oblimin rotation was used rather than varimax rotation (Tabachnick & Fidell, 1996). The KMO measure for these 16 items was 0.92. The final number of factors to retain was determined by eigenvalues ≥ 1.0 and examination of the PCA’s Scree plot.

Table 2. Student/Peer Items, Means, Standard Deviations, *t* Values, and Significance Levels by Classroom Environment

	Classroom environment					
	Non-LC		LC		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	Sig.
1. I feel comfortable asking a teacher for help if I do not understand course-related material.	2.35	.99	1.74	.76	4.53	.000
2. I feel that a faculty member would not pass judgment on me if I told them about a problem I was having.	2.57	1.00	1.97	.87	4.25	.000
3. I feel comfortable discussing my academic program or career plans with a faculty member.	2.36	.92	1.78	.82	4.42	.000
4. If I had a reason, I would feel comfortable seeking help from a faculty member outside of class time (i.e., during office hours, etc.).	2.36	1.07	1.83	.84	3.61	.000
5. I feel that faculty try to relate to students on their level.	2.75	.96	2.20	.83	4.04	.000
6. I ask questions if I do not understand something.	2.72	.98	2.25	.96	3.30	.001
7. I feel that faculty are cold and intimidating.	2.55	.93	2.19	1.15	2.35	.016
8. I feel comfortable seeking help from a teacher before or after class.	2.51	.94	2.07	.90	3.17	.002
9. Most teachers do a very good job of explaining their objectives.	2.71	.84	2.10	.79	5.02	.000
10. I feel comfortable socializing with a faculty member outside of class.	3.16	1.03	2.54	1.08	4.05	.000
11. Faculty members encourage students to come and see them if they need extra help.	2.21	.91	1.87	.86	2.61	.010
12. I feel comfortable talking about a problem with faculty.	2.99	1.01	2.30	.96	4.67	.000
13. I feel comfortable sharing my opinions or ideas with faculty.	2.87	.98	2.13	.86	5.31	.000
14. Faculty members make exceptions for students when they're in need.	2.79	.96	2.33	.95	3.20	.002

15. I feel that a faculty member would not pass judgment on me if I was having difficulty with their course.	2.65	.95	2.22	.98	3.03	.003
16. I feel that faculty are easily approachable.	2.76	.99	2.12	.81	4.66	.000
17. I feel comfortable asking a faculty member for advice about how to solve a problem.	2.85	1.00	2.35	.82	3.62	.000
18. Faculty members are interested in teaching students.	2.48	.88	1.99	.90	3.77	.000
19. I feel comfortable asking a teacher for help with a personal problem.	3.43	1.09	2.80	.98	4.03	.000
20. I feel that faculty listen to student needs.	2.89	.87	2.36	.86	4.11	.000
21. I feel that a faculty member would give me reasons why I should or should not do something if I asked.	2.64	.80	2.28	.98	2.86	.005
22. Faculty members care about the quality of their teaching.	2.49	.86	2.10	.81	3.14	.002
23. I feel that faculty are concerned about students.	2.57	.87	2.14	.79	3.42	.001
24. I feel that faculty talk over students' heads most of the time.	2.96	.86	2.68	.96	2.13	.035
25. I feel that a faculty member would take the time to talk to me if I needed help.	2.51	.97	2.04	.81	3.40	.001
26. Faculty are interested in knowing what students think.	2.58	.89	2.19	.81	3.07	.002
27. I feel that faculty are flexible where there is reason to be.	2.66	.87	2.23	.93	3.27	.001
28. I feel that a faculty member has really listened to my concerns or problems when I talked about them.	2.85	.96	2.36	.91	3.48	.002
29. I feel that a faculty member really tried to understand my problem when I talked about it.	2.87	.97	2.29	.81	4.31	.001
30. I feel that a faculty member would be sensitive to my difficulties if I shared them.	2.73	.92	2.20	.74	4.10	.001
31. I feel that a faculty member tried to answer my question.	2.56	.84	2.14	.83	3.35	.000

Table 2. (Cont'd.)

	Classroom environment					
	Non-LC		LC		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>Sig.</i>
32. I feel that a faculty member tried to help me in practical ways, like doing something for me, when I had a problem.	2.91	.93	2.39	.93	3.79	.001
33. I feel that a faculty member would be sympathetic if I was upset.	2.86	.98	2.28	1.00	4.03	.000
34. I feel that a faculty member would make an exception if I could not turn an assignment in on time because of a personal problem.	2.81	1.01	2.29	.93	3.56	.000
35. I feel a faculty member would show me how to do something that I didn't know how to do if I needed help.	2.40	.84	2.01	.80	3.20	.002

Table 3. Student/Peer Measure
Standardized Factor Loadings of Principle
Components Analysis

	Factor			
	1	2	3	4
5. Speaking in class is easy because I feel comfortable.	.877			
3. I feel comfortable volunteering ideas or opinions in class.	.836			
1. I feel comfortable asking a question in class.	.813			
30. I feel comfortable contributing to class discussions.	.768			
38. It is difficult to meet other students in class.		.798		
31. I know very few people in my classes.		.741		
14. I rarely talk to other students in my classes.		.735		
35. No one in my classes knows anything personal about me.		.698		
37. I have discussed personal matters with students who I met in class.			.754	
43. I invite people I know from class to do things socially.			.729	
39. I have developed personal relationships with other students in class.			.703	
44. I discuss events which happen outside of class with my classmates.			.615	
25. If I miss class, I know students who I could get the notes from.				.790
29. Other students are helpful in reminding me when assignments are due or when tests are approaching.				.742
27. I could call another student from class if I had a question about an assignment.				.689
46. I have met with classmates outside of class to study for an exam.				.503

Table 4. Student/Faculty Measure
Standardized Factor Loadings of Principle Components Analysis

	Factor		
	1	2	3
25. I feel that a faculty member would take the time to talk to me if I needed help.	.836		
30. I feel that a faculty member would be sensitive to my difficulties if I shared them.	.769		
33. I feel that a faculty member would be sympathetic if I was upset.	.723		
29. I feel that a faculty member really tried to understand my problem when I talked about it.	.713		
1. I feel comfortable asking a teacher for help if I do not understand course-related material.		.854	
8. I feel comfortable seeking help from a teacher before or after class.		.764	
4. If I had a reason, I would feel comfortable seeking help from a faculty member outside of class time (i.e., during office hours, etc.).		.731	
19. I feel comfortable asking a teacher for help with a personal problem.			.797
10. I feel comfortable socializing with a faculty member outside of class.			.774
12. I feel comfortable talking about a problem with faculty.			.750

faculty support/comfort dimension (perceived faculty academic support/comfort and perceived faculty social support comfort) The other underlying dimensions of the sense of belonging instrument remained unchanged.

The five factors of the Sense of Belonging (SB) instrument identified in this study are Perceived Peer Support, Perceived Faculty Support/Comfort, Perceived Classroom Comfort, Perceived Isolation, and Empathetic Faculty Understanding. These five factors explain a total of 63.3 percent of the variance among the 26 items, or 38.8 percent, 9.0 percent, 6.4 percent, 4.9 percent, and 4.2 percent of the total variance, respectively. Standardized factor loading

values for the 26 items that comprise the Sense of Belonging instrument are presented in Table 5.⁸

PART C: USING THE SB INSTRUMENT TO EVALUATE RETENTION/INTERVENTION MODELS

Despite institutional variation in the organization of freshman seminar classes and learning communities, findings from the various reporting sources all converge on the achievement of program success in their respective settings (Dwyer, 1981; Fidler & Hunter, 1989; Gabelnick, MacGregor, Matthews, & Smith, 1990; Ness, Rhodes, & Rhodes, 1989; Robinson, 1972; Wilkie & Kuckuck, 1989). However, these investigations have focused primarily on the impact of these courses on outcomes of academic achievement and have neglected to examine their impact on psychosocial factors (i.e., sense of belonging) believed to be related to persistence (Barefoot, Warnock, Dickinson, Richardson, & Roberts, 1998). Moreover, no studies have differentially investigated the impact of different models of popular support programs, operating within the same setting, on any of the aforementioned factors. In this study, the Sense of Belonging instrument is used to examine whether different classroom environments (freshman seminar alone, or freshman seminar as part of a learning community) impact psychosocial student factors differently.

Analysis of Variance was used to determine if freshmen seminar students in learning communities were benefiting more from their classroom environment than were students in stand-alone freshman seminar courses. As expected, students in learning communities scored significantly better on all five factors of the Sense of Belonging instrument than did other students. Learning community students reported higher levels of perceived peer support, perceived faculty support/comfort, perceived classroom comfort in the classroom environment, and empathetic faculty understanding. These same learning community students also reported lower levels of perceived isolation than students in a stand-alone freshman seminar course. Group means, standard deviations, and *F* values are presented in Table 6.

PART D: GENERAL DISCUSSION AND FUTURE DIRECTIONS

Findings from this investigation indicate that “sense of belonging” to the institution stems from perceptions of “valued involvement” in the collegiate

⁸ Coefficient alphas were computed to determine the internal consistency of each of the five factors. Coefficient alphas for the five factors were 0.87 for Perceived Peer Support, 0.87 for Perceived Faculty Support/Comfort, 0.90 for Perceived Classroom Comfort, 0.82 for Perceived Isolation, and 0.85 for Empathetic Faculty Understanding. Descriptive bivariate correlations among the SB instrument's five factors ranged from 0.75 for Perceived Peer Support and Empathetic Faculty Understanding to -0.46 for Perceived Classroom Comfort and Perceived Isolation.

Table 5. Sense of Belonging Scale
Standardized Factor Loadings of Principle Components Analysis

	Factor				
	1	2	3	4	5
27. I could call another student from class if I had a question about an assignment.	.733				
29. Other students are helpful in reminding me when assignments are due or when tests are approaching.	.729				
24. If I miss class, I know students who I could get the notes from.	.637				
46. I have met with classmates outside of class to study for an exam.	.598				
44. I discuss events which happen outside of class with my classmates.	.592				
43. I invite people I know from class to do things socially.	.589				
39. I have developed personal relationships with other students in class.	.561				
37. I have discussed personal matters with students who I met in class.	.476				
8. I feel comfortable seeking help from a teacher before or after class.		-.740			
1. I feel comfortable asking a teacher for help if I do not understand course-related material.		-.677			
4. If I had a reason, I would feel comfortable seeking help from a faculty member outside of class time (i.e., during office hours, etc.).		-.660			
12. I feel comfortable talking about a problem with faculty.		-.636			
10. I feel comfortable socializing with a faculty member outside of class.		-.555			
19. I feel comfortable asking a teacher for help with a personal problem.		-.493			

Table 5. (Cont'd.)

	Factor				
	1	2	3	4	5
5. Speaking in class is easy because I feel comfortable.			-.975		
3. I feel comfortable volunteering ideas or opinions in class.			-.873		
30. I feel comfortable contributing to class discussions.			-.771		
2. I feel comfortable asking a question in class.			-.769		
38. It is difficult to meet other students in class.				.826	
35. No one in my classes knows anything personal about me.				.783	
14. I rarely talk to other students in my classes.				.702	
31. I know very few people in my classes.				.682	
25. I feel that a faculty member would take the time to talk to me if I needed help.					.736
33. I feel that a faculty member would be sympathetic if I was upset.					.716
30. I feel that a faculty member would be sensitive to my difficulties if I shared them.					.690
28. I feel that a faculty member really tried to understand my problem when I talked about it.					.664

Extraction Method: Principal Component Analysis
 Rotation Method: Oblimin with Kaiser Normalization.

environment. This perception of “valued involvement” appears predicated on: 1) establishing functionally supportive peer relationships—“functional,” in terms of the ability of the relationship(s) to directly aid students in meeting the challenges and changes of their new environment; and 2) the belief that faculty are compassionate and that the student is more than just another face in the crowd. This study also found strong evidence for the utility of a Sense of Belonging instrument and its ability to add to the discipline’s general knowledge about the factors that contribute to student persistence in college.

Table 6. Sense of Belonging Instrument ANOVA Table
Means, Standard Deviations, and *F* Values by Classroom Environment

Factors	Classroom environment	Mean ^a	<i>SD</i>	<i>F</i>	Sig.
Perceived peer support	Non-learning community	3.00	.662	97.447	.000
	Learning community	2.07	.590		
Perceived faculty support/comfort	Non-learning community	2.80	.775	28.336	.000
	Learning community	2.21	.689		
Perceived classroom comfort	Non-learning community	2.91	.854	48.823	.000
	Learning community	2.09	.827		
Perceived isolation	Non-learning community	3.06	.746	46.032	.000
	Learning community	2.28	.832		
Empathetic faculty understanding	Non-learning community	2.85	.625	52.728	.000
	Learning community	2.20	.564		

^aMeans were calculated from 5-point items where (1) indicated a response of "completely true," (2) a response of "mostly true," (3) "equally true and untrue," (4) "mostly untrue," and (5) "completely untrue."

Based on the Sense of Belonging instrument, learning communities were found to facilitate the development of relationships that integrated both academic and social aspects of university life by allowing for greater interaction among peers around common challenges and stressors. The common agenda and similar struggles further encouraged student/peer interactions and helped to create meaningful bonds between students that are characterized by support rather than mere social unions. The inherent opportunity provided by the learning community model, for students to both aid other students and to be aided in meeting the challenges of academic demands, helped to create mutually rewarding and pragmatic connections among students and provided for relationships in which students not only valued knowing other students but felt valued themselves. The perception that one is cared about contributed directly to interpersonal attachment, intimacy, and reassurance; all of these increased students' comfort around both social and academic matters and enhanced their ability to cope with the demands of the transition.

FUTURE DIRECTIONS

Findings from qualitative and quantitative investigations have led to increased support for learning communities at the University of Rhode Island. As a result,

the number of learning communities available to new students more than doubled between the 1999-2000 and 2000-2001 academic years. In fact, during the fall 2000 semester, nearly half of all new students belonged to a learning community. Using this cohort of students, an investigation is currently underway to further examine the psychometric properties of the Sense of Belonging (SB) instrument. Many first-semester freshmen ($n = 973$) completed a Web-based survey during the final week of their URI 101 course. Embedded in this survey is the SB instrument. Also part of the survey are questions intended to measure academic goal commitment, institutional commitment, intent to persist, sense of confidence to handle challenges of college, campus involvement, as well as questions to examine background characteristics believed to be related to persistence (e.g., gender, socioeconomic status, parents' education). Each respondent also answers questions about their URI 101 class and, if applicable, the learning community.

A confirmatory factor analysis will be conducted on this data set to determine the plausibility of the factor structure for the Sense of Belonging instrument found in the exploratory stage. Provided the factors emerge as anticipated, construct validity will be judged by examining the relationship between the scale and other variables on the survey (e.g., analyzing the relationship between the SB instrument and questions pertaining to institutional commitment, satisfaction with learning communities, and intent to persist). The relationship between scores on the SB instrument and background characteristics will be investigated. The SB instrument will also be used to evaluate the impact of the first-year seminar and the various learning community models on student retention.

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